

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	313	(copper 'cu') with (('ru' rhthenium) (rhthenium near3 oxide "RuO.sub.2")) with (diffusion diffusing difus\$3 barrier prevent\$4 preventing prevention)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/09/19 14:02
L2	138	(copper 'cu') with (('ru' rhthenium) (rhthenium near3 oxide "RuO.sub.2")) near5 (diffusion diffusing difus\$3 barrier prevent\$4 preventing prevention)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/09/19 14:02
L3	105	(copper 'cu') near5 (('ru' rhthenium) (rhthenium near3 oxide "RuO.sub.2")) near5 (diffusion diffusing difus\$3 barrier prevent\$4 preventing prevention)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/09/19 14:17
L4	2	(copper 'cu') near5 ((rhthenium near3 oxide "RuO.sub.2")) near5 (diffusion diffusing difus\$3 barrier prevent\$4 preventing prevention)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/09/19 14:42
L5	1	5-218035	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/09/19 14:42
L6	2	(copper 'cu') near5 ((rhthenium near3 oxide "RuO.sub.2")) near5 (diffusion diffusing difus\$3 barrier prevent\$4 preventing prevention)	US-PGPU B; USPAT; USOCR; EPO; JPO; DERWEN T; IBM_TDB	OR	ON	2006/09/19 14:54
L7	167	((rhthenium near3 oxide "RuO.sub.2")) near5 (diffusion diffusing difus\$3 barrier prevent\$4 preventing prevention)	US-PGPU B; USPAT; USOCR; EPO; JPO; DERWEN T; IBM_TDB	OR	ON	2006/09/19 14:54

## EAST Search History

L8	4862	"RuO.sub.2"	US-PGPU B; USPAT; USOCR; EPO; JPO; DERWEN T; IBM_TDB	OR	ON	2006/09/19 16:30
L9	37	"Ru O.sub.2"	US-PGPU B; USPAT; USOCR; EPO; JPO; DERWEN T; IBM_TDB	OR	ON	2006/09/19 14:54
L10	15	("20020036309"   "20020064592"   "4976996"   "5770469"   "5916365"   "5939746"   "6107136"   "6335241"   "6365502"   "6368910"   "6432779"   "6433379"   "6464779"   "6472322"   "6482740").PN.	US-PGPU B; USPAT; USOCR	OR	OFF	2006/09/19 15:52
L11	45	("4789598"   "4792378"   "4825809"   "4948623"   "4965656"   "4970093"   "5082542"   "5085731"   "5098516"   "5112448"   "5231751"   "5268034"   "5312509"   "5354712"   "5453124"   "5464656"   "5594278"   "5595606"   "5624498"   "5674787"   "5689227"   "5723028"   "5723387"   "5730801"   "5736191"   "5755859"   "5763953"   "5766379"   "5789321"   "5792593"   "5824590"   "5843516"   "5852088"   "5866237"   "5891348"   "5891513"   "5916359"   "5948467"   "5969422"   "6015917"   "6054227"   "6057237"   "6063506"   "6136682"   "6181012").PN.	US-PGPU B; USPAT; USOCR	OR	OFF	2006/09/19 16:08

## EAST Search History

L12	56	("4976996").URPN.	USPAT	OR	OFF	2006/09/19 16:23
L13	0	("6713373").URPN.	USPAT	OR	OFF	2006/09/19 16:27
L14	0	("6713373").URPN.	USPAT	OR	OFF	2006/09/19 16:27
L15	15	("20020036309"   "20020064592"   "4976996"   "5770469"   "5916365"   "5939746"   "6107136"   "6335241"   "6365502"   "6368910"   "6432779"   "6433379"   "6464779"   "6472322"   "6482740").PN.	US-PGPU B; USPAT; USOCR	OR	OFF	2006/09/19 16:27
L16	15	("20020036309"   "20020064592"   "4976996"   "5770469"   "5916365"   "5939746"   "6107136"   "6335241"   "6365502"   "6368910"   "6432779"   "6433379"   "6464779"   "6472322"   "6482740").PN. OR ("6713373").URPN.	US-PGPU B; USPAT; USOCR	OR	OFF	2006/09/19 16:27
L17	459	("RuO.sub.2" ruthenium adj oxide) with (ruthenium "Ru") with (barrier diffus\$4)	US-PGPU B; USPAT; USOCR; EPO; JPO; DERWEN T; IBM_TDB	OR	ON	2006/09/19 16:32
L18	31	("RuO.sub.2" ruthenium adj oxide) with (ruthenium "Ru") with (barrier diffus\$4) with (copper "Cu")	US-PGPU B; USPAT; USOCR; EPO; JPO; DERWEN T; IBM_TDB	OR	ON	2006/09/19 16:33
L19	2	("5183775"   "5555486").PN.	US-PGPU B; USPAT; USOCR	OR	OFF	2006/09/19 17:18
S22	1794	(dielectric near5 inter adj layer)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/02 17:50

## EAST Search History

S24	247	(diffusion near3 (layer barrier)) with (('ru' rhthenium) (rhthenium near3 oxide ))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/02 18:06
S25	0	S22 with S24	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/02 17:53
S26	3	S22 and S24	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/02 17:53
S27	164	S24 and dielectric	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/02 17:58
S28	37	S27 and copper	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/02 17:58
S29	8588	(copper 'cu') with (('ru' rhthenium) (rhthenium near3 oxide ))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/09/19 13:57
S30	71	(copper 'cu') with (('ru' rhthenium) (rhthenium near3 oxide )) with dielectric	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/02 18:07
S31	114	(copper 'cu') with (('ru' rhthenium) (rhthenium near3 oxide )) with barrier	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 05:44
S32	14	(copper 'cu') with (('ru' rhthenium) (rhthenium near3 oxide )) with barrier with dielectric	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/02 18:19
S33	1	10/916257	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/02 18:19
S34	807	('ru' rhthenium rhthenium near3 oxide ruo\$6) with barrier	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 05:56
S35	356	S34 and ((etch\$3 pattern\$3) with (dielectric 'ild' inter adj layer interlayer))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 05:56
S36	313	S35 and ((etch\$3 pattern\$3) with (trench hole via opening groove damascene dual adj damascene))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 05:57

## EAST Search History

S37	75	S36 and (('cu' copper) with (trench hole via opening groove damascene dual adj damascene))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 06:02
S38	58	S37 and (interconnect\$3 inter adj connect\$3)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 06:00
S39	1167	('ru' ruthenium ruthenium near3 oxide ruo\$6) with barrier	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 05:57
S40	509	S39 and ((etch\$3 pattern\$3) with (dielectric 'ild' inter adj layer interlayer))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 05:59
S41	445	S40 and ((etch\$3 pattern\$3) with (trench hole via opening groove damascene dual adj damascene))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 05:59
S42	13348	('ru' ruthenium ruthenium near3 oxide ruo\$6) with (barrier liner seed lining film layer)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 06:07
S43	3744	S42 and ((etch\$3 pattern\$3) with (dielectric 'ild' inter adj layer interlayer insulat\$3))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 05:59
S44	2631	S43 and ((etch\$3 pattern\$3) with (trench hole via opening groove damascene dual adj damascene))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 06:00
S45	874	S44 and (interconnect\$3 inter adj connect\$3 meltalization)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 06:01
S46	271	S45 and (('cu' copper) with (trench hole via opening groove damascene dual adj damascene))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 06:02
S47	170	S46 and diffusion near4 (barrier layer film liner)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 06:03
S48	170	S47 and ('ru' ruthenium ruthenium near3 oxide ruo\$6 'cu' copper)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 09:29

## EAST Search History

S49	3	"6664186"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 07:47
S50	1	"6346484".PN.	USPAT; USOCR	OR	ON	2005/02/03 08:59
S51	1	"20020064592".PN.	US-PGPU B	OR	ON	2005/02/03 09:17
S52	1	"20020064592".PN.	US-PGPU B	OR	ON	2005/02/03 09:17
S53	1	"20020036309".PN.	US-PGPU B	OR	ON	2005/02/03 09:17
S54	1	"6482740".PN.	USPAT; USOCR	OR	ON	2005/02/03 09:17
S55	1	"6482740".PN.	USPAT; USOCR	OR	ON	2005/02/03 09:17
S56	1	"6472322".PN.	USPAT; USOCR	OR	ON	2005/02/03 09:22
S57	1	"6472322".PN.	USPAT; USOCR	OR	ON	2005/02/03 09:22
S58	1	"6433379".PN.	USPAT; USOCR	OR	ON	2005/02/03 09:23
S59	1	"6368910".PN.	USPAT; USOCR	OR	ON	2005/02/03 09:23
S60	1	"6368910".PN.	USPAT; USOCR	OR	ON	2005/02/03 09:25
S61	1	"6335241".PN.	USPAT; USOCR	OR	ON	2005/02/03 09:25
S62	1	10/600039	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 13:29
S63	0	2003/0003658	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 13:29
S64	1	"20030003658"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 13:33
S65	6	"6255205"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/02/03 13:34

## EAST Search History

S66	2	"ru.sub.o.sub.2"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 10:52
S67	3	"ru.sub.2 o.sub.2"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 10:52
S68	4082	"ruo.sub.2"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 10:53
S69	1275	"ruo.sub.2" with 'ru'	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 10:55
S70	141	"ruo.sub.2" with (barrier diffusion)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 10:56
S71	251	"ruo.sub.2" with (barrier diffusion)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 10:58
S72	14	"ruo.sub.2" with ((barrier diffusion) with (copper 'cu'))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 17:21
S73	22	("ruo.sub.2" ruthenium adj oxide) with ((barrier diffusion) with (copper 'cu'))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 13:26
S74	12	("ruo.sub.2" ruthenium adj oxide) with ((barrier diffusion) with interconnect\$3)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 14:30
S75	235	("re" ruthenium) with ((barrier diffusion) with (copper 'cu'))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 14:31
S76	47	("re" ruthenium) near5 ((barrier diffusion) with (copper 'cu'))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 15:27
S77	4	(("ru" ruthenium) near5 ("ruo. sub.2" ruthenium near3 oxide) near5 (barrier diffusion) with (copper 'cu'))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 15:35
S78	8212	(("ru" ruthenium) ("ruo.sub. 2" ruthenium near3 oxide)) near5 (copper 'cu')	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 15:36

## EAST Search History

S79	362	( ("ruo.sub.2" ruthenium near3 oxide)) near5 (copper 'cu')	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 15:36
S80	8118	("ru" ruthenium) near5 (copper 'cu')	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 15:36
S81	268	S79 and S80	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/20 15:37
S82	1	"5555486".PN.	USPAT; USOCR	OR	ON	2005/06/20 16:44
S83	22	((("ruo.sub.2" ruthenium adj oxide) with (barrier diffusion)) with (copper 'cu'))	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/29 13:24
S84	1	10/600039	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/29 10:31
S85	20	((("ruo.sub.2" ruthenium adj oxide) and ('ru' ruthenium)) with (barrier diffusion adhes\$4 glue)) with (copper 'cu')	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/29 15:25
S86	1	"5555486".PN.	USPAT; USOCR	OR	ON	2005/06/29 13:50
S87	1	"5183775".PN.	USPAT; USOCR	OR	ON	2005/06/29 13:50
S88	35	"5618746"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2005/06/29 15:25
S89	5015	(diffusion near3 (layer barrier)) with ('ru' rhthenium copper)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 10:22
S90	311	(diffusion near3 (layer barrier)) with ('ru' rhthenium )	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 10:22
S91	32	(diffusion near3 (layer barrier)) with ('ru' rhthenium ) with ('cu' copper) with diffus\$3	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 14:13



## EAST Search History

S92	0	(diffusion near3 (layer barrier)) with ('ru' rhthenium ) with (('cu' copper) with diffus\$3) with (ruo2 rhthenium near3 oxide)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 14:14
S93	0	(diffusion near3 (layer barrier)) with ('ru' rhthenium ) with (('cu' copper) with diffus\$3) same (ruo2 rhthenium near3 oxide)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 14:23
S94	0	(diffusion near3 (layer barrier)) with (ruo2 rhthenium near3 oxide) with (('cu' copper) with diffus\$3)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 14:24
S95	0	(ruo2 rhthenium near3 oxide) with (('cu' copper) with diffus\$3)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 14:24
S96	24	(ruo2 rhthenium near3 oxide) with ('cu' copper)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 14:46
S97	2	barrier with (ruo2 rhthenium near3 oxide) with ('cu' copper)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:18
S98	1	barrier with ((ruo2 rhthenium near3 oxide) and (ru rhthenium)) with ('cu' copper)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 14:48
S99	38	"5618746"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 14:48
S10 0	1	"5536672".PN.	USPAT; USOCR	OR	OFF	2006/03/16 14:57
S10 1	1	"5386382".PN.	USPAT; USOCR	OR	OFF	2006/03/16 14:57
S10 2	5	barrier same (ruo2 rhthenium near3 oxide) with ('cu' copper)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:36
S10 3	0	(ruo2 rhthenium near3 oxide) with ('cu' copper) with diffus\$3	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:39
S10 4	24	(ruo2 rhthenium near3 oxide) with ('cu' copper)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:42

## EAST Search History

S10 5	39	(copper with interconnect\$3) same barrier with (ru ruthenium)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:44
S10 6	40	(copper with interconnect\$3) same (barrier diffus\$3) with (ru ruthenium)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:44
S10 7	2	S106 and (copper with interconnect\$3) same (barrier diffus\$3) with (ruo2 ruthenium near3 oxide)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:51
S10 8	2	S106 and (copper with interconnect\$3) same (barrier diffus\$3) with (ruo2 ruthenium near3 oxide)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:45
S10 9	318	(barrier diffus\$3) with (ruo2 ruthenium near3 oxide)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:51
S11 0	108	(barrier diffus\$3) near5 (ruo2 ruthenium near3 oxide)	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:52
S11 1	3	(barrier diffus\$3) near5 (ruo2 ruthenium near3 oxide) with copper	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 15:59
S11 2	1	"5555486".PN.	USPAT; USOCR	OR	OFF	2006/03/16 15:56
S11 3	1	"5183775".PN.	USPAT; USOCR	OR	OFF	2006/03/16 15:58
S11 4	3	(barrier diffus\$3) near5 (ruo2 "ru.sub.2" ruthenium near3 oxide) with copper	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 16:00
S11 5	3	(barrier diffus\$3) near5 (ruo2 "ru.sub.2" ruthenium near3 oxide) with copper	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 16:00
S11 6	3	(barrier diffus\$3) near5 (ruo2 "ru.sub.x" ruthenium near3 oxide) with copper	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 16:01
S11 7	64	(barrier diffus\$3) near5 ( ruthenium ru) with copper	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/16 17:18
S11 8	1	10/600039	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/17 07:16

## EAST Search History

S11 9	3	"6624513"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/17 07:28
S12 0	1	09/255856	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/17 07:54
S12 1	17	"6441492"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/17 08:03
S12 2	1	"6713373"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/17 08:12
S12 3	1	"6831003"	US-PGPU B; USPAT; EPO; JPO	OR	ON	2006/03/17 08:12